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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/674,617	09/30/2003	Charles R. Szmanda	52134	4206

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EXAMINER	
ZACHARIA, RAMSEY E	
ART UNIT	**PAPER NUMBER**
1773	

DATE MAILED: 07/05/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/674,617	SZMANDA ET AL.	
	Examiner	Art Unit	
	Ramsey Zacharia	1773	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *25 April 2005*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-12* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-12* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *30 September 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

1. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

3. Claims 1-12 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. This is a new matter rejection. No support could be found in the disclosure as originally filed for the solvent "propylene glycol diacetate" recited in claim 1.

4. Claim 1 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

5. Claims 1-12 are rendered indefinite because independent claim 1 contains improper Markush language. See MPEP § 2173.05(h). Replacing the phrase "chosen from among" on

line 8 of claim 1 with the phrase --selected from the group consisting of-- is sufficient to overcome this rejection.

Claim Rejections - 35 USC § 102

6. Claims 1-5 and 7-11 are rejected under 35 U.S.C. 102(e) as being anticipated by Chung et al. (U.S. Patent 6,355,749).

Chung et al. teach a ferroelectric polymer comprising 50-80 mol% of vinylidene fluoride and 15-40 mol% of trifluoroethylene (column 4, lines 54-65). The polymer may be formed into films by casting a solution of the polymer in a solvent (column 7, lines 21-25). Suitable solvents include dimethyl sulfoxide and dimethyl acetamide (column 10, lines 9-13).

Regarding the atomic force microscopy roughness, crystalline domain size, coercivity field strength, polling fatigue, and differential permittivity, these properties appear to be a function of the solvent used in forming the film (see page 8, line 29-page 9, line 18 and Figure 2). Since Chung et al. uses the same polymer material (polymer that comprises trifluoroethylene and vinylidene fluoride) and forms the film from one of the claimed solvents having a δ_v value of greater than 8.5 $(cal/cc)^{1/2}$, the ferroelectric film of Chung et al. should inherently have an atomic force microscopy roughness, crystalline domain size, coercivity field strength, polling fatigue, and differential permittivity that meets the limitations of the instant claims.

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

8. Claims 1, 2, 4, 5, and 7-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nishi et al. (U.S. Patent 5,541,747) in view of Chung et al. (U.S. Patent 6,355,749).

Nishi et al. teach a displace device comprising an organic ferroelectric film (Example 2). The ferroelectric film comprises a copolymer of trifluoroethylene and vinylidene fluoride cast from a solution with dimethyl formamide as the solvent (column 18, lines 38-44).

Regarding the atomic force microscopy roughness, crystalline domain size, coercivity field strength, polling fatigue, and differential permittivity, these properties appear to be a function of the solvent used in forming the film (see page 8, line 29-page 9, line 18 and Figure 2). Since Nishi et al. uses the same polymer material (copolymer of trifluoroethylene and vinylidene fluoride) and forms the film from a solvent having a δ_v value of greater than 8.5 $(cal/cc)^{1/2}$, the ferroelectric film of Nishi et al. should inherently have an atomic force microscopy roughness, crystalline domain size, coercivity field strength, polling fatigue, and differential permittivity that meets the limitations of the instant claims.

Nishi et al. do not teach the use of one of the solvents recited in claim 1. However, Nishi et al. do teach using dimethyl formamide.

Chung et al. is directed to a ferroelectric polymer comprising 50-80 mol% of vinylidene fluoride and 15-40 mol% of trifluoroethylene (column 4, lines 54-65). The polymer may be formed into films by casting a solution of the polymer in a solvent (column 7, lines 21-25). Suitable solvents include dimethyl formamide, dimethyl sulfoxide, and dimethyl acetamide (column 10, lines 9-13).

Chung et al. show that dimethyl formamide, dimethyl sulfoxide, and dimethyl acetamide are recognized in the art as equivalent solvents for casting films of ferroelectric vinylidene fluoride polymers. Therefore, because these solvents were art-recognized equivalents at the time the invention was made, one of ordinary skill in the art would have found it obvious to substitute dimethyl sulfoxide or dimethyl acetamide for dimethyl formamide.

9. Claims 1-5 and 7-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ohigashi et al. (U.S. Patent 5,679,753) in view of Chung et al. (U.S. Patent 6,355,749).

Ohigashi et al. teach a film of a copolymer of 75 mol% vinylidene fluoride and 25 mol% ethylene trifluoride cast from solution with dimethyl formamide as the solvent (Example 1, column 5, lines 35-47).

Regarding the atomic force microscopy roughness, crystalline domain size, coercivity field strength, polling fatigue, and differential permittivity, these properties appear to be a function of the solvent used in forming the film (see page 8, line 29-page 9, line 18 and Figure 2). Since Ohigashi et al. uses the same polymer material (copolymer of trifluoroethylene and vinylidene fluoride) and forms the film from a solvent having a δ_v value of greater than 8.5 $(cal/cc)^{1/2}$, the ferroelectric film of Ohigashi et al. should inherently have an atomic force microscopy roughness, crystalline domain size, coercivity field strength, polling fatigue, and differential permittivity that meets the limitations of the instant claims.

Ohigashi et al. do not teach the use of one of the solvents recited in claim 1. However, Ohigashi et al. do teach using dimethyl formamide.

Chung et al. is directed to a ferroelectric polymer comprising 50-80 mol% of vinylidene fluoride and 15-40 mol% of trifluoroethylene (column 4, lines 54-65). The polymer may be formed into films by casting a solution of the polymer in a solvent (column 7, lines 21-25). Suitable solvents include dimethyl formamide, dimethyl sulfoxide, and dimethyl acetamide (column 10, lines 9-13).

Chung et al. show that dimethyl formamide, dimethyl sulfoxide, and dimethyl acetamide are recognized in the art as equivalent solvents for casting films of ferroelectric vinylidene fluoride polymers. Therefore, because these solvents were art-recognized equivalents at the time the invention was made, one of ordinary skill in the art would have found it obvious to substitute dimethyl sulfoxide or dimethyl acetamide for dimethyl formamide.

10. Claims 1-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Zhang et al. (U.S. Patent 6,423,412) in view of Chung et al. (U.S. Patent 6,355,749).

Zhang et al. teach an electrical device comprising a layer of a ferroelectric polymer subjected to electron beam radiation (column 2, lines 42-54). The polymer may be a copolymer of 50-86 mol% vinylidene fluoride and 14-50 mol% trifluoroethylene (column 5, lines 33-45). The film may be made by casting a solution of the polymer in dimethyl formamide as the solvent (column 5, lines 46-53).

Regarding the atomic force microscopy roughness, crystalline domain size, coercivity field strength, polling fatigue, and differential permittivity, these properties appear to be a function of the solvent used in forming the film (see page 8, line 29-page 9, line 18 and Figure 2). Since Zhang et al. uses the same polymer material (copolymer of trifluoroethylene and

vinylidene fluoride) and forms the film from a solvent having a δ_v value of greater than 8.5 $(cal/cc)^{1/2}$, the ferroelectric film of Zhang et al. should inherently have an atomic force microscopy roughness, crystalline domain size, coercivity field strength, polling fatigue, and differential permittivity that meets the limitations of the instant claims.

Zhang et al. do not teach the use of one of the solvents recited in claim 1. However, Zhang et al. do teach using dimethyl formamide or methyl ethyl ketone.

Chung et al. is directed to a ferroelectric polymer comprising 50-80 mol% of vinylidene fluoride and 15-40 mol% of trifluoroethylene (column 4, lines 54-65). The polymer may be formed into films by casting a solution of the polymer in a solvent (column 7, lines 21-25). Suitable solvents include dimethyl formamide, dimethyl sulfoxide, and dimethyl acetamide (column 10, lines 9-13).

Chung et al. show that methyl ethyl ketone, dimethyl formamide, dimethyl sulfoxide, and dimethyl acetamide are recognized in the art as equivalent solvents for casting films of ferroelectric vinylidene fluoride polymers. Therefore, because these solvents were art-recognized equivalents at the time the invention was made, one of ordinary skill in the art would have found it obvious to substitute dimethyl sulfoxide or dimethyl acetamide for methyl ethyl ketone or dimethyl formamide.

Response to Arguments

11. Applicant's arguments with respect to claims 1-12 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

12. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

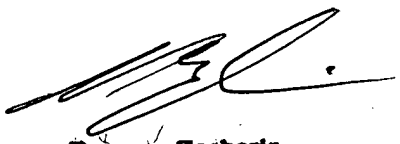
A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ramsey Zacharia whose telephone number is (571) 272-1518. The examiner can normally be reached on Monday through Friday from 9 to 5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Carol Chaney, can be reached at (571) 272-1284. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR

system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



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